

17581 U.S. PTO
07/23/03

60414 DIV-1

Please type a plus sign (+) inside this box → ☐

PTO/SB/05 (11-00)

Approved for use through 10/31/2002. OMB 0651-0032

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No. **P1532**
First Inventor **SERGEY LOPATIN**
Title **A SEMICONDUCTOR DEVICE
SURFACE (herein amended)**
Express Mail Label No. **EV264215203US**

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

- ☒ Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
- ☐ Applicant claims small entity status.
See 37 CFR 1.27.
- ☒ Specification [Total Pages **23**]
(preferred arrangement set forth below)
 - Descriptive title of the invention
 - Cross Reference to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to sequence listing, a table, or a computer program listing appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claim(s)
 - Abstract of the Disclosure
- ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets **5**]
- Oath or Declaration [Total Pages **2**]
 - ☐ Newly executed (original or copy)
Copy from a prior application (37 CFR 1.63 (d))
 - ☒ (for continuation/divisional with Box 18 completed)
 - ☐ **DELETION OF INVENTOR(S)**
Signed statement attached deleting inventor(s)
named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
- ☐ Application Data Sheet. See 37 CFR 1.76

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

- ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix)
- Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
 - ☐ Computer Readable Form (CRF)
 - Specification Sequence Listing on:
 - ☐ CD-ROM or CD-R (2 copies); or
 - ☐ paper
 - ☐ Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

- ☒ Assignment Papers (cover sheet & document(s))
- ☐ 37 CFR 3.73(b) Statement (when there is an assignee) ☒ Power of Attorney
- ☐ English Translation Document (if applicable)
- ☒ Information Disclosure Statement (IDS)/PTO-1449 ☒ Copies of IDS Citations
- ☒ Preliminary Amendment (**26 pages**)
- ☒ Return Receipt Postcard (MPEP 503) (**2**) (Should be specifically itemized)
- ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed)
- ☒ Request and Certification under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent. **Ch. No. 6191**
- ☒ Other: **Reel/Frame 012649/0001**

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:

☐ Continuation ☒ Divisional ☐ Continuation-in-part (CIP) of prior application No.: **10,083,809**

Prior application information:

Examiner **GURLEY, LYNNE ANN**

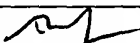
Group Art Unit: **2812**

For CONTINUATION OR DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. CORRESPONDENCE ADDRESS

☒ Customer Number or Bar Code Label  or ☐ Correspondence address below

Name **LaRiviere, Grubman & Payne, LLP**
P.O. Box 3140
Address
City **Monterey,** State **CA** Zip Code **93942**
Country **USA** Telephone **831-649-8800** Fax **831-649-8835**

Name (Print/Type) **Robert E. Kasody** Registration No. (Attorney/Agent) **50,268**
Signature  Date **July 23, 2003**

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Box Patent Application, Washington, DC 20231.

17581 U.S. PTO
10/626371
07/23/03

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Date of Deposit: June 14, 2002

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Typed or Printed Name of Person Mailing Paper or Fee: Patricia AguillonSignature: Pat Aguillon

PATENT

Docket No. P1409.

EV133912626US

**IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANT: SERGEY LOPATIN
 ALEXANDER H. NICKEL

SERIAL NO.: 10/083,809 EXAMINER: UNASSIGNED

FILED: FEBRUARY 26, 2002 ART UNIT 2812

FOR: METHOD OF REDUCING ELECTROMIGRATION IN A COPPER
 LINE BY ELECTROPLATING AN INTERIM COPPER-ZINC
 ALLOY THIN FILM ON A COPPER SURFACE AND A
 SEMICONDUCTOR DEVICE THEREBY FORMED

COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

TRANSMITTAL LETTER

Dear Sir:

In connection with the above referenced patent application, transmitted herewith are the following:

1. Information Disclosure Statement (1 pages);
2. Information Disclosure Statement By Applicant Form PTO-1449 (1 page);
3. U.S. Patent No. 6,197,181 B1 (18 pages);
4. U.S. Patent No. 6,022,808 (6 pages);
5. Article "A Practical Guide to Semiconductor Processing" (3 pages);
6. Article "Electrochemical Codeposition and Electrical Characterization of a Copper-Zinc Alloy Metallization" (2 pages);
7. Article "Using Electrochemistry to Improve Copper Interconnect" (4 pages);

8. Article "ECD Seed Layer for Inlaid Copper Metallization" (2 pages); and
9. Post card in acknowledgment of receipt of all transmitted materials.

Please date-stamp the enclosed postcard and return same to the undersigned in acknowledgment of receipt of all transmitted material.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Victor Flores", with a long horizontal flourish extending to the right.

Victor Flores
Reg. No. 29,638

VF/sgs
June 14, 2002
LARIVIERE, GRUBMAN & PAYNE, LLP
P.O. Box 3140
Monterey, CA 93942
(831) 649-8800



Ms. Winona Orange - Paralegal
ADVANCED MICRO DEVICES, INC.
Technology Law Department
One AMD Place, M/S 68
P.O. Box 3453
Sunnyvale, CA 94088 -3453

USPS 2002 recycled

Title: "A Semiconductor Device Having Copper Lines With Reduced Electromigration Using An Electroplated Interim Copper-Zinc Alloy Thin Film On A Copper Surface"

Docket No.: P1532 AMD Ref. No.: G0414 Div-1 Serial No.: Filed Herewith

Express Mail Label Number: **EV264215203US**

Express Mail Date In: **July 23, 2003**

Please acknowledge receipt of the documents described below by imprinting the Patent and Trademark Office "Date Stamp" hereon and returning to the addressee indicated on the reverse hereof.

1. Utility Patent Application Transmittal Letter (1 page);
2. Appointment of Associate Attorney (2 pages);
3. Preliminary Amendment (26 pages);
4. Specification (15 pages); Claims (7 pages); Abstract (1 page);
5. Drawings (5 sheets, 11 figures);
6. Declaration and Power of Attorney for Patent Application (2 pages);
7. Recorded Assignment Reel/Frame No.012649/0001 (5 pages);
8. Nonpublication Request Form (1 page);
9. Copy of Information Disclosure Statement submitted June 14, 2002 (39 pages);
10. Fee Transmittal Form (1 page);
11. Check No. 6191 in the amount of \$750.00 for application fee; and
12. Post card in acknowledgment of all transmitted materials (2 postcards).

IMPORTANT NOTICE

PLEASE STAMP WITH SAME DATE AS EXPRESS MAIL "DATE IN" as shown above, per 37 CFR 1.6(a)(2)

G0414-DIV1
EV264215203US

PTO/SB/17 (01-03)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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FEE TRANSMITTAL for FY 2003

Effective 01/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$)**750.00**

Complete if Known

Application Number	FILED HEREWITH
Filing Date	FILED HEREWITH
First Named Inventor	Sergey Lopatin
Examiner Name	Gurley, Lynne Ann
Art Unit	2812
Attorney Docket No.	p1532

METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☐ Deposit Account:

Deposit
Account
Number
Deposit
Account
Name

The Commissioner is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Credit any overpayments

☐ Charge any additional fee(s) during the pendency of this application

☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	750	2001	375	Utility filing fee	750.00
1002	330	2002	165	Design filing fee	
1003	520	2003	260	Plant filing fee	
1004	750	2004	375	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	
SUBTOTAL (1)					(\$) 750.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims **19** -20** = **0** X **0.00** = **0.00**
Independent Claims **3** -3** = **0** X **0.00** = **0.00**
Multiple Dependent =

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1202	18	2202	9	Claims in excess of 20	
1201	84	2201	42	Independent claims in excess of 3	
1203	280	2203	140	Multiple dependent claim, if not paid	
1204	84	2204	42	** Reissue independent claims over original patent	
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2)					(\$) 0.00

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	410	2252	205	Extension for reply within second month	
1253	930	2253	465	Extension for reply within third month	
1254	1,450	2254	725	Extension for reply within fourth month	
1255	1,970	2255	985	Extension for reply within fifth month	
1401	320	2401	160	Notice of Appeal	
1402	320	2402	160	Filing a brief in support of an appeal	
1403	280	2403	140	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,300	2453	650	Petition to revive - unintentional	
1501	1,300	2501	650	Utility Issue fee (or reissue)	
1502	470	2502	235	Design Issue fee	
1503	630	2503	315	Plant Issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	750	2809	375	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	750	2810	375	For each additional invention to be examined (37 CFR 1.129(b))	
1801	750	2801	375	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$)**0.00**

SUBMITTED BY

Name (Print/Type) **Robert E. Kasody**

Registration No. **50.268**

(Complete if applicable)

Telephone **831-649-8800**

Signature

Date

7/16/23/2003

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

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EV264215203US

G0414 DIV-1

PTO/SB/35 (05-03)

Approved for use through 4/30/2003. OMB 0651-0031

U.S. Patent and Trademark Office; U. S. DEPARTMENT OF COMMERCE

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NONPUBLICATION REQUEST UNDER 35 U.S.C. 122(b)(2)(B)(i)	First Named Inventor	Sergey Lopatin
	Title	A Semiconductor Device Having Copper ... Copper Surface (herein amended)
	Attorney Docket Number	P1532

I hereby certify that the invention disclosed in the attached application **has not and will not be** the subject of an application filed in another country, or under a multilateral agreement, that requires publication at eighteen months after filing.

I hereby request that the attached application not be published under 35 U.S.C. 122(b).

July 23, 2003
Date

[Signature]
Signature

831-649-8800
Telephone number

Robert E. Kasody Reg. No. 50,268
Typed or printed name

This request must be signed in compliance with 37 CFR 1.33(b) and submitted with the application **upon filing**.

Applicant may rescind this nonpublication request at any time. If applicant rescinds a request that an application not be published under 35 U.S.C. 122(b), the application will be scheduled for publication at eighteen months from the earliest claimed filing date for which a benefit is claimed.

If applicant subsequently files an application directed to the invention disclosed in the attached application in another country, or under a multilateral international agreement, that requires publication of applications eighteen months after filing, the applicant **must** notify the United States Patent and Trademark Office of such filing within forty-five (45) days after the date of the filing of such foreign or international application. **Failure to do so will result in abandonment of this application (35 U.S.C. 122(b)(2)(B)(iii)).**

This collection of information is required by 37 CFR 1.213(a). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.